Amendments to the Specification

Paragraph at page 3, lines 3-24:

The rod magnets are typically provided with some sort of passivation or encapsulation. Often the magnets are plated with nickel, but the plating is subject to scraping and degradation of its protective effect. Better protection is provided if the magnet is instead encapsulated in a hermetically sealed canister. That is, the canister ~~does not~~ prevents the significant passage of gas or liquid from the exterior in an amount sufficient to affect the encapsulated magnet. The encapsulation is particularly needed to protect the fragile NdFeB material within the water bath 52, but it is standard practice to provide some kind of protection for the NdFeB even in a more benign environment. As illustrated in the exploded view of FIG. 3, a conventional encapsulated magnet 60 includes a cylindrical magnet 62, for example, of NdFeB. An exemplary magnet used in sputter reactors has a length of 1-1/4" (32mm) and a diameter of 5/8" (16mm), but the magnet size is freely chosen according to the application. A tubular sleeve 64 is machined from stainless steel tube or rod to close tolerances matching the diameter and length of the rod magnet 62. Similarly, two end caps 66, 68 are machined from stainless steel plate to match the diameter of the sleeve 64. The sleeve 64 may be formed from non-magnetic stainless steel such as Series 300 stainless while the end caps 66, 68 are preferably formed of a magnetically soft stainless steel such as Series 400 stainless so as to act as pole faces. In the encapsulation process, the bottom end cap 68 is laser welded to the one end of the sleeve 64. The rod magnet 62 is then placed inside the sleeve 64 and the top end cap 66 is laser welded to the other end of the sleeve 64 adjacent the rod magnet 62 in place inside the sleeve 64. It is typical also to machine the welded assembly by turning and grinding to achieve the required dimensions.

Paragraph at page 5, lines 16-19:

Flow and bonding of the adhesive are promoted if the gap between the magnet and inner sidewall is less than 0.25mm, preferably less than 0.05mm but greater than ~~0.25mm~~ <u>0.025mm</u>,

and the clearance between the two shell sidewalls is less than 0.2mm, preferably less than ~~1mm~~ 0.1mm, but preferably greater than 0.013mm.

Paragraph at page 6, lines 4-10:

Magnets and canisters of geometries other than right circular cylinders benefit from the invention. For example, a toroidal magnet can be encapsulated in a two-part shell ~~have~~ having two annular moat-shaped cans, one of which has a first annular lip connected to the inside wall and displaced radially inwardly and a second annular lip connected to the outside wall and displaced radially outwardly such that the two lips slide over the other can with the magnet enclosed between the cans. The structure leaves a central bore coaxial with the magnet.

Paragraphs at page 7, line 28 to page 8, line 13:

The bottom can 74 has a similar disk-shaped end 82 and tubular sidewall 84 with substantially the same diameters differing by preferably no more than 0.0005" (0.013mm) primarily limited by the precision of fabrication. However, the bottom can 74 additionally includes a tubular lip 86 extending axially away from the sidewall 84 through a sloping portion 88 and having an inner diameter somewhat larger than the outer diameter of the two sidewalls 80, 84 to allow the two cans 72, 74 to slide together in an overlapping portion forming an annular joint 88 between the two overlapping can 72, 74. The clearance between the outer diameter of the top can 80 and the inner diameter of the lip 86 is preferably less than 0.008" ~~0.2mm~~ (0.2mm), more preferably less than 0.004" (0.1mm), and is conveniently designed at 0.002" (0.05mm). A design clearance should be maintained above 0.0005" (0.013mm) to ease fabrication and promote adhesive flow. The resulting structure resembles a lip stick case or metal cigar tube. The finite width of the joint 88 also allows uncured adhesive to flow through it and so form a sealant within the joint 88, thus providing a hermetically sealed structure. The asymmetric forms of the two cans 72, 64 allows the polarity of the encapsulated magnet 60 to be visually apparent after assembly if the polarity identification is maintained during assembly or poling.

Paragraph at page 11, lines 13-18:

Several encapsulated magnets were prepared according to the described method. They were then treated for two weeks in an autoclave with a water ambient at 120°C, that is, under pressure. After autoclaving, no damage was visible on the magnet package ~~and the encapsulated magnets maintained their magnetic strengths~~. The assemblies were sectioned and inspected. The epoxy adhesive continued to bond the structure together in a tight lamination with no apparent damage.

Paragraph at page 11, lines 24-29:

The thin walls ~~of the~~ of the deep drawn cans provide less mechanical protection than the thicker walls of the machined sleeves and caps of the prior art of FIG. 3. However, the cured adhesive is somewhat resilient and provides some shock resistance. Further, any significant mechanical shock is likely to leave a mark on the thin shell. While the magnet may be damaged, the shock mark provides a visible indicator that the magnetic properties of the encapsulated magnet should be questioned.